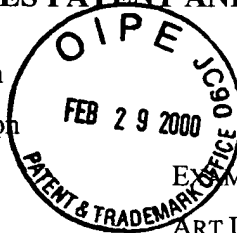


Express Mail Label N .: EJ 74333US  
Date of Deposit: February 29, 2000

Attorney Docket No. 15966-534C CIP1 (CURA-34C CIP1)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANTS: Shimkets and Leach  
ASSIGNEE: CuraGen Corporation  
SERIAL NUMBER: 09/472,688  
FILING DATE: December 27, 1999  
FOR: NUCLEIC ACIDS CONTAINING SINGLE NUCLEOTIDE POLYMORPHISMS AND METHODS OF USE THEREOF



EXAMINER: Not Yet Assigned

ART UNIT: Not Yet Assigned

MAR 03 2000

TECH CENTER 1600

February 29, 2000  
Boston, Massachusetts

Assistant Commissioner for Patents  
Washington, D.C. 20231

TRANSMITTAL LETTER

Sir:

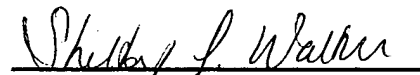
Transmitted herewith for filing in the present application are the following documents:

- ☒ Information Disclosure Statement (4 pages);
- ☒ Modified Form 1449/PTO duplicate copy (2 pages);
- ☒ Copies of Cited references: A1, B1-B8, C1-C25; and
- ☒ Return Postcard

If the enclosed papers are considered incomplete, the Mail Room and/or the Application Branch is respectfully requested to contact the undersigned at 617/542-6000, Boston, Massachusetts.

No fee is believed to be due. However, if any fees are to be assessed, the Commissioner is hereby authorized to charge the balance due to the undersigned's account, Deposit Account No. 50-0311 (Reference 15966-534C CIP1, CURA-34C CIP1). A duplicate copy of this transmittal letter is enclosed.

Respectfully submitted,



Ivor R. Elrifi, Reg. No. 39,529  
Shelby J. Walker, Reg. No. 45,192  
Attorneys for Applicant  
MINTZ, LEVIN et al.  
One Financial Center  
Boston, Massachusetts 02111  
Tel: (617) 542-6000  
Fax: (617) 542-2241

Express Mail Label No.: E 5374333US  
Date of Deposit: February 29, 2000



Attorney Docket No. 15966-534C CIP1

(CURA-34C CIP1)

*D. Johnson*  
*#6 6-73-07*  
*IDS w/ Refers*

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

APPLICANTS: Shimkets and Leach  
ASSIGNEE: CuraGen Corporation  
SERIAL NUMBER: 09/472,688 EXAMINER: Not Yet Assigned  
FILING DATE: December 27, 1999 ART UNIT: Not Yet Assigned  
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February 29, 2000  
Boston, Massachusetts

Assistant Commissioner for Patents  
Washington, D.C. 20231

**INFORMATION DISCLOSURE STATEMENT**

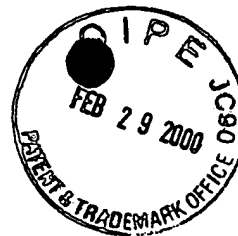
Pursuant to the duty of disclosure under 37 C.F.R. §§1.56, 1.97 and 1.98, Applicants hereby make of record the documents listed below and on the attached modified Form PTO-1449 (submitted in duplicate) in the above-identified application, copies of which are submitted herewith. The order of presentation of the references should not be construed as an indication of the importance of the references.

**U.S. Patent Documents:**

Affymetrix, Inc.	5,856,104
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**Foreign Patent Documents:**

Affymax Technologies, N.V.	EP 717,113 A2	✓
Affymax Technologies, N.V.	WO 95/11995	✓
Trustees of Dartmouth College	WO 93/22456	✓
Genetics Institute, Inc.	WO 98/14470	✓
Lander, et al.	WO 98/20165	
Affymetrix, Inc.	WO 98/56954	
Progentior, Inc.	WO 8/14466	
Affymetrix, Inc.	WO 97/29212	



# **Other Prior Art – Non Patent Literature Documents:**

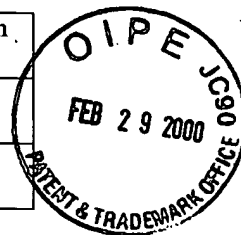
Abravaya, K., J. J. Carrino, et al. (1995). "Detection of point mutations with a modified ligase chain reaction (Gap- LCR)." <u>Nucleic Acids Res</u> 23(4): 675-82.
Adams, M. D., J. M. Kelley, et al. (1991). "Complementary DNA sequencing: expressed sequence tags and human genome project." <u>Science</u> 252(5013): 1651-6.
Barany, F. (1991). "Genetic disease detection and DNA amplification using cloned thermostable ligase." <u>Proc Natl Acad Sci U S A</u> 88(1): 189-93.
Cotton, R. G., N. R. Rodrigues, et al. (1988). "Reactivity of cytosine and thymine in single-base-pair mismatches with hydroxylamine and osmium tetroxide and its application to the study of mutations." <u>Proc Natl Acad Sci U S A</u> 85(12): 4397-401.
Evans, W. E. and M. V. Relling (1999). "Pharmacogenomics: translating functional genomics into rational therapeutics." <u>Science</u> 286(5439): 487-91.
Faham, M. and D. R. Cox (1995). "A novel in vivo method to detect DNA sequence variation." <u>Genome Res</u> 5(5): 474-82.
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Gibbs, R. A., P. N. Nguyen, et al. (1989). "Detection of single DNA base differences by competitive oligonucleotide priming." <u>Nucleic Acids Res</u> 17(7): 2437-48.
Kren, B. T., B. Parashar, et al. (1999). "Correction of the UDP-glucuronosyltransferase gene defect in the gunn rat model of crigler-najjar syndrome type I with a chimeric oligonucleotide." <u>Proc Natl Acad Sci U S A</u> 96(18): 10349-54.
Landegren, U., R. Kaiser, et al. (1988). "A ligase-mediated gene detection technique." <u>Science</u> 241(4869): 1077-80.
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Myers, R. M., Z. Larin, et al. (1985). "Detection of single base substitutions by ribonuclease cleavage at mismatches in RNA:DNA duplexes." <u>Science</u> 230(4731): 1242-6.
Newton, C. R., A. Graham, et al. (1989). "Analysis of any point mutation in DNA. The amplification refractory mutation system (ARMS)." <u>Nucleic Acids Res</u> 17(7): 2503-16.
Nikiforov, T. T., R. B. Rendle, et al. (1994). "Genetic Bit Analysis: a solid phase method for typing single nucleotide polymorphisms." <u>Nucleic Acids Res</u> 22(20): 4167-75.
Orita, M., Y. Suzuki, et al. (1989). "Rapid and sensitive detection of point mutations and DNA polymorphisms using the polymerase chain reaction." <u>Genomics</u> 5(4): 874-9.
Orita, M., H. Iwahana, et al. (1989). "Detection of polymorphisms of human DNA by gel electrophoresis as single-strand conformation polymorphisms." <u>Proc Natl Acad Sci U S A</u> 86(8): 2766-70.
Orum, H., P. E. Nielsen, et al. (1993). "Single base pair mutation analysis by PNA directed PCR clamping." <u>Nucleic Acids Res</u> 21(23): 5332-6.
Rhodes, M., R. Straw, et al. (1998). "A high-resolution microsatellite map of the mouse genome." <u>Genome Res</u> 8(5): 531-42.
Saiki, R. K., P. S. Walsh, et al. (1989). "Genetic analysis of amplified DNA with immobilized sequence-specific oligonucleotide probes." <u>Proc Natl Acad Sci U S A</u> 86(16): 6230-4.
Syvanen, A. C., K. Aalto-Setälä, et al. (1990). "A primer-guided nucleotide incorporation assay in the genotyping of apolipoprotein E." <u>Genomics</u> 8(4): 684-92.
Taillon-Miller, P., Z. Gu, et al. (1998). "Overlapping genomic sequences: A treasure trove of single-nucleotide polymorphisms [In Process Citation]." <u>Genome Res</u> 8(7): 748-54.
Thiede, C., E. Bayerdorffer, et al. (1996). "Simple and sensitive detection of mutations in the ras proto-oncogenes using PNA-mediated PCR clamping." <u>Nucleic Acids Res</u> 24(5): 983-4.

APPLICANTS: Shimkets Leach  
U.S.S.N.: 09/472,688

Wagner, R., P. Debbie, et al. (1995). "Mutation detection using immobilized mismatch binding protein (MutS)." Nucleic Acids Res 23(19): 3944-8.

Wallace, R. B., J. Shaffer, et al. (1979). "Hybridization of synthetic oligodeoxyribonucleotides to phi chi 174 DNA: the effect of single base pair mismatch." Nucleic Acids Res 6(11): 3543-57.

Youil, R., B. W. Kemper, et al. (1995). "Screening for mutations by enzyme mismatch cleavage with T4 endonuclease VII." Proc Natl Acad Sci U S A 92(1): 87-91.



This Information Disclosure Statement is being filed:

- ☐ within three months of the filing date of the National Application;
- ☐ within three months of the filing date of the entry of the National Stage, as set forth in 37 C.F.R. §1.491, in an International Application; or
- ☒ before the mailing date of a first Office Action on the merits in the above-identified case.

Accordingly, no fee or certification is required. 37 C.F.R. §1.97

A copy of each of the above-identified information is enclosed unless otherwise indicated on the attached Form PTO-1449 (modified). It is respectfully requested that the Examiner consider completely the cited information, along with any other information, in reaching a determination concerning the patentability of the present claims, and signs the enclosed form PTO-1449 to evidence that the cited information has been fully considered by the Patent and Trademark Office during the examination of this application.

By submitting this Information Disclosure Statement, the Applicant makes no representation that: (1) a search has been performed, of the extent of any search performed, or that more relevant information does not exist; (2) the information cited in the Statement is, or is considered to be, material to patentability as defined in 37 C.F.R. §1.56(b); and (3) the information cited in the Statement is, or is considered to be, in fact, prior art as defined by 35 U.S.C. §102.

APPLICANTS: Shimkets & Leach  
U.S.S.N.: 09/472,688

Notwithstanding any statements by the Applicant, the Examiner is urged to form his/her own conclusion regarding the relevance of the cited information. An early and favorable action is hereby requested. Please charge any additional fees that may be due, or credit any overpayment of same, to Deposit Account No. 50-0311, Reference No. 15966-534C CIP1 (CURA-34C CIP1).



Respectfully submitted,

*Shelby J. Walker*

Ivor R. Elrifi, Reg. No. 39,529  
Shelby J. Walker, Reg. No. 45,192  
Attorneys for Applicant  
MINTZ, LEVIN et al.  
One Financial Center  
Boston, Massachusetts 02111  
Tel: (617) 542-6000  
Fax: (617) 542-2241

Dated: February 29, 2000

TRADOCS:1299256.1(R%\$G011.DOC)

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PTO/SB (12-97)  
Approved for use through 9/30/00. OMB 0651-0031  
Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

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<b>Modified Form 1449/PTO</b>  <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  (use as many sheets as necessary)	<b>Application Number</b>	09/472,688
	<b>Filing Date</b>	12/27/99
	<b>First Named Inventor</b>	Shimkets
	<b>Group Art Unit</b>	Not Yet Assigned
	<b>Examiner Name</b>	Not Yet Assigned
	<b>Attorney Docket Number</b>	15966-534C CIP1 (CURA-34C CIP1)

U.S. PATENT DOCUMENTS							
Exam Initials	Cite No.	U.S. Patent Document No.	Issue Date	Name of Patentee(s) or Applicant(s)	Class	Sub Class	Filing Date If Appropriate
	A1	5,856,104		Affymetrix, Inc.			

FOREIGN PATENT DOCUMENTS						
Exam Initials	Cite No.	Foreign Patent Document Office	Number	Name of Patentee(s) or Applicant(s)	Date of Publication	Translation Yes No
	B1	EP	717,113 A2	Affymax Technologies, N.V.	19/06/96	x
	B2	WO	95/11995	Affymax Technologies, N.V.	04/05/95	x
	B3	WO	93/22456	Trustees of Dartmouth College	11/11/93	x
	B4	WO	98/14470	Genetics Institute, Inc.	09/04/98	x
	B5	WO	98/20165	Lander, et al.	14/05/98	x
	B6	WO	98/56954	Affymetrix, Inc.	17/12/98	x
	B7	WO	98/14466	Progentior, Inc.	09/04/98	x
	B8	WO	97/29212	Affymetrix, Inc.	14/08/97	x

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS		
Exam Initials	Cite No.	Name of Author, Title (when appropriate), Publication, Volume, Page(s), Date, Etc.
	C1	Abravaya, K., J. J. Carrino, et al. (1995). "Detection of point mutations with a modified ligase chain reaction (Gap- LCR)." <u>Nucleic Acids Res</u> 23(4): 675-82.
	C2	Adams, M. D., J. M. Kelley, et al. (1991). "Complementary DNA sequencing: expressed sequence tags and human genome project." <u>Science</u> 252(5013): 1651-6.
	C3	Barany, F. (1991). "Genetic disease detection and DNA amplification using cloned thermostable ligase." <u>Proc Natl Acad Sci U S A</u> 88(1): 189-93.
	C4	Cotton, R. G., N. R. Rodrigues, et al. (1988). "Reactivity of cytosine and thymine in single-base-pair mismatches with hydroxylamine and osmium tetroxide and its application to the study of mutations." <u>Proc Natl Acad Sci U S A</u> 85(12): 4397-401.
	C5	Evans, W. E. and M. V. Relling (1999). "Pharmacogenomics: translating functional genomics into rational therapeutics." <u>Science</u> 286(5439): 487-91.
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	C7	Fischer, S. G. and L. S. Lerman (1983). "DNA fragments differing by single base-pair substitutions are separated in denaturing gradient gels: correspondence with melting theory." <u>Proc Natl Acad Sci U S A</u> 80(6): 1579-83.



OTHER PRIOR ART - NON-PATENT LITERATURE DOCUMENTS		
Exam Initials	Cite No.	Name of Author, Title (when appropriate), Publication, Volume, Page(s), Date, Etc.
	C8	Gibbs, R. A., P. N. Nguyen, et al. (1989). "Detection of single DNA base differences by competitive oligonucleotide priming." <u>Nucleic Acids Res</u> 17(7): 2437-48.
	C9	Kren, B. T., B. Parashar, et al. (1999). "Correction of the UDP-glucuronosyltransferase gene defect in the gunn rat model of crigler-najjar syndrome type I with a chimeric oligonucleotide." <u>Proc Natl Acad Sci U S A</u> 96(18): 10349-54.
	C10	Landegren, U., R. Kaiser, et al. (1988). "A ligase-mediated gene detection technique." <u>Science</u> 241(4869): 1077-80.
	C11	Maskos, U. and E. M. Southern (1993). "A novel method for the parallel analysis of multiple mutations in multiple samples." <u>Nucleic Acids Res</u> 21(9): 2269-70.
	C12	Myers, R. M., Z. Larin, et al. (1985). "Detection of single base substitutions by ribonuclease cleavage at mismatches in RNA:DNA duplexes." <u>Science</u> 230(4731): 1242-6.
	C13	Newton, C. R., A. Graham, et al. (1989). "Analysis of any point mutation in DNA. The amplification refractory mutation system (ARMS)." <u>Nucleic Acids Res</u> 17(7): 2503-16.
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	C15	Orita, M., Y. Suzuki, et al. (1989). "Rapid and sensitive detection of point mutations and DNA polymorphisms using the polymerase chain reaction." <u>Genomics</u> 5(4): 874-9.
	C16	Orita, M., H. Iwahana, et al. (1989). "Detection of polymorphisms of human DNA by gel electrophoresis as single-strand conformation polymorphisms." <u>Proc Natl Acad Sci U S A</u> 86(8): 2766-70.
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	C19	Saiki, R. K., P. S. Walsh, et al. (1989). "Genetic analysis of amplified DNA with immobilized sequence-specific oligonucleotide probes." <u>Proc Natl Acad Sci U S A</u> 86(16): 6230-4.
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	C25	Youil, R., B. W. Kemper, et al. (1995). "Screening for mutations by enzyme mismatch cleavage with T4 endonuclease VII." <u>Proc Natl Acad Sci U S A</u> 92(1): 87-91.

Examiner Signature		Date Considered	
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EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered.

Include copy of this form with next communication to applicant.

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